EMT-Basic, required classroom work, and a specified amount of clinical experience.

The most advanced level of training for this occupation is EMT-Paramedic. At this level, the caregiver receives additional training in body function and more advanced skills. The Paramedic Technology program usually lasts up to 2 years and results in an associate degree in applied science. Such education prepares the graduate to take the National Registry of Emergency Medical Technicians examination and become certified as an EMT-Paramedic. Extensive related coursework and clinical and field experience is required. Due to the longer training requirement, almost all EMT-Paramedics are in paid positions. Refresher courses and continuing education are available for EMTs and paramedics at all levels.

EMTs and paramedics should be emotionally stable, have good dexterity, agility, and physical coordination, and be able to lift and carry heavy loads. They also need good eyesight (corrective lenses may be used) with accurate color vision.

Advancement beyond the EMT-Paramedic level usually means leaving fieldwork. An EMT-Paramedic can become a supervisor, operations manager, administrative director, or executive director of emergency services. Some EMTs and paramedics become instructors, dispatchers, or physician assistants, while others move into sales or marketing of emergency medical equipment. A number of people become EMTs and paramedics to assess their interest in health care and then decide to return to school and become registered nurses, physicians, or other health workers.

**Job Outlook**

Employment of EMTs is expected to grow much faster than the average for all occupations through 2008. Much of this growth will occur as positions change from volunteer to paid and as the population grows, particularly older age groups that are the greatest users of emergency medical services. In addition to job growth, openings will occur because of replacement needs; some workers leave because of stressful working conditions, limited advancement potential, and the modest pay and benefits in the private sector.

Most opportunities for EMTs and paremedics are expected to arise in hospitals and private ambulance services. Competition will be greater for jobs in local government, including fire, police, and third service rescue squad departments, where job growth for these workers is expected to be slower.

**Earnings**

Earnings of EMTs depend on the employment setting and geographic location as well as the individual's training and experience. Median annual earnings of EMTs were $20,290 in 1998. The middle 50 percent earned between $15,660 and $26,240. The lowest 10 percent earned less than $12,700 and the highest 10 percent earned more than $34,480. In local and suburban transportation, where private ambulance firms are located, the median salary was $18,300 in 1997. In local government, except education and hospitals, the median salary was $21,900. In hospitals, the median salary was $19,900.

Those in emergency medical services who are part of fire or police departments receive the same benefits as firefighters or police officers. For example, many are covered by pension plans that provide retirement at half pay after 20 or 25 years of service or if disabled in the line of duty.

**Related Occupations**

Other workers in occupations that require quick and level-headed reactions to life-or-death situations are police officers, firefighters, air traffic controllers, and workers in other health occupations.

**Sources of Additional Information**

General information about EMTs and paramedics is available from:

☛ National Association of Emergency Medical Technicians, 408 Monroe St., Clinton, MS 39056. Internet: **http://www.naemt.org**

☛ National Registry of Emergency Medical Technicians, P.O. Box 29233, Columbus, OH 43229. Internet: **http://www.nremt.org**

☛ National Highway Transportation Safety Administration, EMS Divion, 400 7th St. SW., NTS-14, Washington DC.
Internet: **http://www.nhtsa.dot.gov/people/injury/ems/**

# Health Information Technicians

(O*NET 32911)

**Significant Points**

- Health information technicians are projected to be one of the 20 fastest growing occupations.
- High school students can improve chances of acceptance into a health information education program by taking courses in biology, chemistry, health, and especially computer training.
- Most technicians will be employed by hospitals, but job growth will be faster in offices and clinics of physicians, nursing homes, and home health agencies.

**Nature of the Work**

Every time health care personnel treat a patient, they record what they observed, and how the patient was treated medically. This record includes information the patient provides concerning their symptoms and medical history, the results of examinations, reports of x-rays and laboratory tests, diagnoses, and treatment plans. Health information technicians organize and evaluate these records for completeness and accuracy.

Health information technicians, who may also be called medical record technicians, begin to assemble patients' health information by first making sure their initial medical charts are complete. They ensure all forms are completed and properly identified and signed, and all necessary information is in the computer. Sometimes, they talk to physicians or others to clarify diagnoses or get additional information.

Technicians assign a code to each diagnosis and procedure. They consult classification manuals and rely, also, on their knowledge of disease processes. Technicians then use a software program to assign the patient to one of several hundred "diagnosis-related groups," or DRG's. The DRG determines the amount the hospital will be reimbursed if the patient is covered by Medicare or other insurance programs using the DRG system. Technicians who specialize in coding are called health information coders, medical record coders, coder/abstractors, or coding specialists. In addition to the DRG system, coders use other coding systems, such as those geared towards ambulatory settings.

Technicians also use computer programs to tabulate and analyze data to help improve patient care or control costs, for use in legal actions, or in response to surveys. *Tumor registrars* compile and maintain records of patients who have cancer to provide information to physicians and for research studies.

Health information technicians' duties vary with the size of the facility. In large to medium facilities, technicians may specialize in one aspect of health information, or supervise health information clerks and transcribers while a *health information administrator* manages the department (see the statement on health services managers elsewhere in the *Handbook*). In small facilities, an accredited health information technician sometimes manages the department.

**Working Conditions**

Health information technicians usually work a 40-hour week. Some overtime may be required. In hospitals where health information departments are open 18-24 hours a day, 7 days a week, they may work day, evening, and night shifts.

*Health information technicians organize and evaluate medical records for completeness and accuracy.*

Health information technicians work in pleasant and comfortable offices. This is one of the few health occupations in which there is little or no physical contact with patients. Because accuracy is essential, technicians must pay close attention to detail. Health information technicians who work at computer monitors for prolonged periods must guard against eyestrain and muscle pain.

**Employment**

Health information technicians held about 92,000 jobs in 1998. About 2 out of 5 jobs were in hospitals. The rest were mostly in nursing homes, medical group practices, clinics, and home health agencies. Insurance firms that deal in health matters employ a small number of health information technicians to tabulate and analyze health information. Public health departments also hire technicians to supervise data collection from health care institutions and to assist in research.

**Training, Other Qualifications, and Advancement**

Health information technicians entering the field usually have an associate degree from a community or junior college. In addition to general education, coursework includes medical terminology, anatomy and physiology, legal aspects of health information, coding and abstraction of data, statistics, database management, quality improvement methods, and computer training. Applicants can improve their chances of admission into a program by taking biology, chemistry, health, and computer courses in high school.

Hospitals sometimes advance promising health information clerks to jobs as health information technicians, although this practice may be less common in the future. Advancement usually requires 2-4 years of job experience and completion of a hospital's in-house training program.

Most employers prefer to hire Accredited Record Technicians (ART), who must pass a written examination offered by AHIMA. To take the examination, a person must graduate from a 2-year associate degree program accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) of the American Medical Association. Technicians trained in non-CAAHEP accredited programs, or on the job, are not eligible to take the examination. In 1998, CAAHEP accredited 168 programs for health information technicians. Technicians who specialize in coding may also obtain voluntary certification.

Experienced health information technicians usually advance in one of two ways—by specializing or managing. Many senior health information technicians specialize in coding, particularly Medicare coding, or in tumor registry.

In large health information departments, experienced technicians may advance to section supervisor, overseeing the work of the coding, correspondence, or discharge sections, for example. Senior technicians with ART credentials may become director or assistant director of a health information department in a small facility. However, in larger institutions, the director is a health information administrator, with a bachelor's degree in health information administration. (See the statement on health services managers elsewhere in the *Handbook*.)

**Job Outlook**

Job prospects for formally trained technicians should be very good. Employment of health information technicians is expected to grow much faster than the average for all occupations through 2008, due to rapid growth in the number of medical tests, treatments, and procedures which will be increasingly scrutinized by third-party payers, regulators, courts, and consumers.

Hospitals will continue to employ a large percentage of health information technicians, but growth will not be as fast as in other areas. Increasing demand for detailed records in offices and clinics of physicians should result in fast employment growth, especially in large group practices. Rapid growth is also expected in nursing homes and home health agencies.

**Earnings**

Median annual earnings of health information technicians were $20,590 in 1998. The middle 50 percent earned between $16,670 and $25,440 a year. The lowest 10 percent earned less than $14,150 and the highest 10 percent earned more than $31,570 a year. Median annual earnings in the industries employing the largest number of health information technicians in 1997 were as follows:

| | |
|---|---|
| Hospitals | $20,900 |
| Nursing and personal care facilities | 20,100 |
| Offices and clinics of medical doctors | 18,100 |

According to a 1997 survey by the American Health Information Management Association, the median annual salary for accredited health information technicians was $30,500. The average annual salary for health information technicians employed by the Federal Government was $27,500 in early 1999.

**Related Occupations**

Health information technicians need a strong clinical background to analyze the contents of medical records. Other occupations requiring knowledge of medical terminology, anatomy, and physiology without directly touching the patient, are medical secretaries, medical transcriptionists, medical writers, and medical illustrators.

**Sources of Additional Information**
Information on careers in health information technology, including a list of CAAHEP-accredited programs is available from:
☛ American Health Information Management Association, 233 N. Michigan Ave., Suite 2150, Chicago, IL 60601. Internet: **http://www.ahima.org**

# Licensed Practical Nurses

(O*NET 32505)

**Significant Points**

- Training lasting about 1 year is available in about 1,100 State-approved programs, mostly in vocational or technical schools.
- Nursing homes will offer the most new jobs. Jobseekers in hospitals may face competition.

**Nature of the Work**
Licensed practical nurses (L.P.N.s), or licensed vocational nurses as they are called in Texas and California, care for the sick, injured, convalescent, and disabled under the direction of physicians and registered nurses. (The work of registered nurses is described elsewhere in the *Handbook*.)

Most L.P.N.s provide basic bedside care. They take vital signs such as temperature, blood pressure, pulse, and respiration. They also treat bedsores, prepare and give injections and enemas, apply dressings, give alcohol rubs and massages, apply ice packs and hot water bottles, and insert catheters. L.P.N's observe patients and report adverse reactions to medications or treatments. They collect samples from patients for testing, perform routine laboratory tests, feed them, and record food and liquid intake and output. They help patients with bathing, dressing, and personal hygiene, keep them comfortable, and care for their emotional needs. In States where the law allows, they may administer prescribed medicines or start intravenous fluids. Some L.P.N.s help deliver, care for, and feed infants. Some experienced L.P.N.s supervise nursing assistants and aides.

L.P.N.s in nursing homes, in addition to providing routine bedside care, may also help evaluate residents' needs, develop care plans, and supervise the care provided by nursing aides. In doctors' offices and clinics, they may also make appointments, keep records, and perform other clerical duties. L.P.N.s who work in private homes may also prepare meals and teach family members simple nursing tasks.

*Many licensed practical nurses work nights and weekends.*

**Working Conditions**
Most licensed practical nurses in hospitals and nursing homes work a 40-hour week, but because patients need round-the-clock care, some work nights, weekends, and holidays. They often stand for long periods and help patients move in bed, stand, or walk.

L.P.N.s may face hazards from caustic chemicals, radiation, and infectious diseases such as hepatitis. They are subject to back injuries when moving patients and shock from electrical equipment. They often must deal with the stress of heavy workloads. In addition, the patients they care for may be confused, irrational, agitated, or uncooperative.

**Employment**
Licensed practical nurses held about 692,000 jobs in 1998. Thirty-two percent of L.P.N.s worked in hospitals, 28 percent worked in nursing homes, and 14 percent in doctors' offices and clinics. Others worked for temporary help agencies, home health care services, residential care facilities, schools, or government agencies. About 1 in 4 worked part time.

**Training, Other Qualifications, and Advancement**
All States require L.P.N.s to pass a licensing examination after completing a State-approved practical nursing program. A high school diploma is usually required for entry, but some programs accept people without a diploma.

In 1998, approximately 1,100 State-approved programs provided practical nursing training. Almost 6 out of 10 students were enrolled in technical or vocational schools, while 3 out of 10 were in community and junior colleges. Others were in high schools, hospitals, and colleges and universities.

Most practical nursing programs last about 1 year and include both classroom study and supervised clinical practice (patient care). Classroom study covers basic nursing concepts and patient-care related subjects, including anatomy, physiology, medical-surgical nursing, pediatrics, obstetrics, psychiatric nursing, administration of drugs, nutrition, and first aid. Clinical practice is usually in a hospital, but sometimes includes other settings.

L.P.N.s should have a caring, sympathetic nature. They should be emotionally stable because work with the sick and injured can be stressful. As part of a health care team, they must be able to follow orders and work under close supervision.

**Job Outlook**
Employment of L.P.N.s is expected to grow as fast as the average for all occupations through 2008 in response to the long-term care needs of a rapidly growing population of very old people and to the general growth of health care. However, L.P.N.s seeking positions in hospitals may face competition, as the number of hospital jobs for L.P.N.s declines; the number of inpatients, with whom most L.P.N.s work, is not expected to increase much. As in most other occupations, replacement needs will be a major source of job openings.

Employment in nursing homes is expected to grow faster than the average. Nursing homes will offer the most new jobs for L.P.N.s as the number of aged and disabled persons in need of long-term care rises. In addition to caring for the aged, nursing homes will be called on to care for the increasing number of patients who have been released from the hospital and have not recovered enough to return home.

Much faster than average growth is expected in home health care services. This is in response to a growing number of older persons with functional disabilities, consumer preference for care in the home, and technological advances, which make it possible to bring increasingly complex treatments into the home.

An increasing proportion of sophisticated procedures, which once were performed only in hospitals, are being performed in